

Collaboration Enables Catacel's Hydrogen Fuel Reformers Designs



TECHNOLOGY

NASA Glenn Research Center is preparing to test and evaluate key components of Catacel's new fuel reformer design—the catalyst and its metal substrate. NASA's expertise in this realm makes it ideal for high temperature testing in the presence of heavy hydrocarbon fuels.

COMMERCIAL APPLICATION

GLITeC established a partnership between NASA Glenn and Catacel to improve the design and performance of the company's fuel reformers and heat exchangers for use in solid oxide fuel cell systems. The partnership has enabled Catacel to develop new critical components for the reforming of jet fuel into hydrogen. The hydrogen can then be used to power a solid oxide fuel cell auxiliary power unit that could deliver electrical power to aircraft or other mobile applications. The final testing of these components is set to take place at NASA soon.

Catacel manufactures heat exchangers and fuel reformers for fuel cell applications. Catacel's core technologies are the design and manufacture of metal foil honeycomb structures, and the ability to formulate and apply catalyst coatings to the foil. Their products are typically used in the distributed power, auxiliary power, and commercial combustion markets.



NASA researcher Thomas Tomsik installs Catacel's combustion reactor onto NASA Glenn's combustion test rig.

SOCIAL/ECONOMIC BENEFIT

Catacel's partnership with NASA Glenn has led to the creation of several unique heat exchanger and fuel reformer designs, and the development of one new product and several potential new products. Catacel has created one new job and saved over \$50,000 in development costs, and projects that sales of their new product will create 50 new jobs and a capital investment of over \$1 million. As a social benefit, hydrogen powered fuel cells will help reduce U.S. dependence on foreign oil, operate at lower cost, and produce less harmful pollution.

NASA APPLICATIONS

NASA Glenn is currently developing technologies that will enable the use of a fuel cell auxiliary power unit on a commercial aircraft as an alternative to the use of the aircraft engine as a source of electrical power. A major U.S. aircraft manufacturer has estimated that a fuel cell powered auxiliary power unit could result in fuel savings of 20 percent for a typical two-hour commercial flight.

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